

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

Claims 1-10 (Cancelled).

11. (Currently Amended) A discrimination sensor that optically detects a surface structure of an object by scanning ~~along~~ a surface of the object, the discrimination sensor comprising:

a sensor unit having an optical path opening ~~widely opened~~ wider in a direction perpendicular to ~~the~~ a scanning direction along which the object is scanned than in a direction parallel to the scanning direction;

an integrated light emitting and detecting unit located in the sensor unit and including

at least one light emitter that is provided in the sensor unit and emits emitting light;

a light receiver that is provided in the sensor unit and receives detector detecting light; emitted by the at least one light emitter and that is reflected from the object, and

a focusing optical system comprising a transparent body in which the at least one light emitter and the light detector are disposed, the transparent body including a first lens surface that focuses the light emitted from the at least one light emitter towards the optical path opening, and a second lens surface that focuses light that is emitted from the at least one light emitter, that is reflected from the object, and that is incident into the sensor unit through the optical path opening to the light receiver, wherein the focusing optical system focuses the light emitted from the light emitter towards the optical path opening and onto the surface of the object as a

~~sensing light having a sensing area being wide in a direction perpendicular to the scanning direction, and wherein the focusing optical system focuses light generated on the surface structure of the object and is incident into the sensor unit through the optical path opening to the light receiver detector.~~

Claim 12 (Cancelled).

13. (Currently Amended) The discrimination sensor according to claim 11, wherein

the at least one light emitter individually emits a plurality of sensing light beams having ~~wavelength bands~~ wavelengths that differ from each other; and

~~wherein the light receiver receives lights generated on the surface structure of~~ detector detects the sensing light beams reflected from the object independently when the plurality of respective sensing light beams are individually emitted.

14. (Currently Amended) The discrimination sensor according to claim 13, wherein the ~~light receiver detector sequentially receives lights generated on the surface structure of~~ detector detects the sensing light beams reflected from the object when the plurality of respective sensing light beams are individually emitted.

Claims 15 and 16 (Cancelled).

17. (Currently Amended) The discrimination sensor according to claim 13, wherein the plurality of sensing light beams includes a first sensing light beam having a ~~wavelength band~~ in a range from substantially 700 nm to substantially 1600 nm, and a second sensing light beam having a ~~wavelength band~~ in a range from substantially 380 nm to substantially 700 nm.

18. (Currently Amended) The discrimination sensor according to claim 11, wherein the plurality of sensing light beams ~~include~~ includes a first sensing light beam having a wavelength ~~band~~ in a range from substantially 800 nm to substantially 1000 nm, and a second sensing light beam having a wavelength ~~band~~ in a range from substantially 550 nm to substantially 650 nm.

19. (Currently Amended) The discrimination sensor according to claim 11, wherein the plurality of sensing light beams includes a first sensing light beam ~~in a band~~ having a wavelength of substantially 940 nm, and a second sensing light beam ~~in a band~~ having a wavelength of substantially 640 nm.

20. (Currently Amended) The discrimination sensor according to claim 11 further comprising a computation/determination unit that performs a computation on a discrimination signal ~~outputted~~ output from the light ~~receiver~~ detector when light ~~generated on the surface structure of~~ reflected from the object is ~~received~~ detected, and determines whether ~~or not~~ the discrimination signal is within a predetermined tolerance range.

Claim 21 (Cancelled).

22. (Currently Amended)) The discrimination sensor according to claim 13, wherein the plurality of sensing light beams ~~include~~ includes a first sensing light beam having a wavelength ~~band~~ in a range from substantially 800 nm to substantially 1000 nm, and a second sensing light beam having a wavelength ~~band~~ in a range from substantially 550 nm to substantially 650 nm.

23. (Currently Amended) The discrimination sensor according to claim 13, wherein the plurality of sensing light beams includes a first sensing light beam in a

band having a wavelength of substantially 940 nm, and a second sensing light beam ~~in~~
~~a band~~ having a wavelength of substantially 640 nm.

24. (New) The discrimination sensor according to claim 11, wherein the first and second lens surfaces are adjacent each other.

25. (New) The discrimination sensor according to claim 11, wherein
the at least one light emitter includes a first light emitter emitting light at a first wavelength and a second light emitter emitting light at a second wavelength,
the focusing optical system includes a third lens surface that focuses the light emitted from the second light emitter towards the optical path opening,
the first lens surface focuses the light emitted from the first light emitter towards the optical path opening, and
the first and second light emitters are disposed in the transparent body.

26. (New) The discrimination sensor according to claim 25, wherein
the light detector is disposed between the first and second light emitters,
the second lens surface is adjacent the first and third lens surfaces, and
the light detector is disposed between the first and second light emitters.